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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,968	08/20/2003	Henrique Soares Cerqueira	Q76952	4996

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EXAMINER

HANDAL, KAITY V

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 06/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/643,968

Applicant(s)

CERQUEIRA ET AL.

Examiner

Kaity Handal

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/20/2003.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3, 5, 15-20, and 26-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites the limitation "the pre-stripping fluid" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 15 recites the limitation "the cross-sectional free area" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 15 recites the limitation "the free area of the rips" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claims 17-20, 26-34 uses the symbol " Φ " in line 2. The symbol has not been defined in the claim rendering it unclear. For examination purposes it has been interpreted as defined on page 11 on the specification.

Claims 15, 17, 19, 28, 30 recites the limitation "the rip" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Regarding claims 6-7, the word "basically" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention.

Specification

3. The disclosure is objected to because of the following informalities:

Page 2, line 17 "US\$" appears to be a typographical error.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krug et al. (US 4,500,423), and further in view of Hedrick (US 7,002,221 B1) and in view of Haddad et al. (US 4,933,150).

With respect to claims 1, 3-5, 20, 35-37 and 40, Krug teaches an apparatus for stripping hydrocarbons directed to a gas-solid separation process and wherein the gas-solid separation process is part of a fluid catalytic cracking process (col. 3, lines 14-21) comprising:

- a) an approximately vertical stripping chamber (fig. 8);
- b) several pairs of parallel baffles (77 & 75) arranged in rows;
- c) a fluid-distributing device (steam ring)/(pipe grid)/(steam inlet manifold) (37) for feeding a gaseous stripping fluid/steam; said stripping chamber (21) comprising a

zone of downward circulation (between the riser (25) and the wall (80)) (col. 4, lines 56-68) of the suspended particles counter-currently to said fluid/steam (which flows upward through manifold (37)) (col. 5, lines 1-5), with the pairs of segmented baffles (77 & 75) being oriented so that such rows are offset relative to rows of other levels (illustrated).

Krug fails to show segmented baffles. Hedrick teaches a stripping apparatus (fig. 1) having segmented baffles/downcomers (fig 3, 66) aligned with an imperforate section (62) in order to allow most of the catalyst to fall therethrough and assure a horizontal movement of the catalyst across the surface of the baffles (35) (col. 7, lines 49-58).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have segmented baffles in Krug's apparatus, as taught by Hedrick, in order to allow most of the catalyst to fall therethrough and assure a horizontal movement of the catalyst across the surface of the baffles.

Krug fails to teach a grid to collect refractory and coke debris. Haddad teaches a fluid catalytic cracking system comprising a vessel (fig. 4, 88) having grid/filters near vents (100 & 106) in order to contain particulates (col. 8, lines 23-27).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a grid/filter in Krug's apparatus, as taught by Haddad, in order to contain particulates.

With respect to claims 6-7, Krug as modified teaches wherein said vertical stripping chamber (21) comprises a set of a series of at least two/three segmented, baffle plates (77 & 75) arranged in sequence (illustrated).

With respect to claim 8, Krug teaches wherein an impinging pairs of baffles (fig. 8, 51 & 61) are oriented so as to be set off relative to the next row of baffles, allowing the gaseous flow to meet an impinging surface able to reduce coalescence of the stripping fluid bubbles (illustrated).

With respect to claim 9, Krug as modified teaches wherein the sets of segmented baffles include four to fifteen sets of parallel baffles (illustrated).

With respect to claims 10, 12 and 14, Krug as modified teaches wherein the segmented sets of baffles comprise conventional baffles (of any geometry) (refracted) (illustrated) (col. 4, lines 63-64).

With respect to claim 11, Krug as modified teaches wherein the segmented sets of baffles comprise baffles of the disc and donut type (illustrated).

With respect to claim 13, Krug teaches wherein any upper disc is supported by the next lower disc, said disc being in turn supported by the upper donut, and successively (as illustrated).

With respect to claim 15, Krug teaches wherein the cross-sectional free area is of from 20% to 80% of the total area (col. 3, lines 1-13).

Regarding limitations in claims 15-20 and 28-31, change in size and shape is not patently distinct over the prior art absent persuasive evidence that the particular configuration of the claimed invention is significant. See *In re Rose*, 220 F.2d 459,

Art Unit: 1764

105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

With respect to claim 21, Krug teaches wherein the baffles are parallel to the horizontal (illustrated).

With respect to claim 22, Krug teaches wherein the baffles are slant baffles, with a slope to the horizontal of from 20° to 40° (col. 9, lines 43-46).

With respect to claim 23, Krug teaches wherein the angle between the chamber walls and the impinging baffle/donut is of from 30° to 60° (col. 5, lines 47-49).

With respect to claim 24, Krug teaches wherein the angle between the chamber walls and the impinging baffle/donut is 45° (fig. 6) (col. 7, lines 6-24).

With respect to claim 25, Krug as modified teaches wherein a set of segmented baffles containing 2 to 6 baffles, is alternated with a set of at least two segmented discs (illustrated).

With respect to claims 26-27 and 32-34, Krug teaches that the axial spacing between the riser and wall baffles is such to maintain a substantially constant cross-section for catalyst flow through the stripping zone (fig. 8, 39) (col. 9, lines 36-49). Krug does not explicitly disclose the distances as claimed. The specific distance between the discs and baffles as claimed is not considered to confer patentability to the claims. As the catalyst flow rate is a variable that can be modified, among others, by adjusting the distance between the discs and baffles effecting the uniformity of the catalyst cross-sectional flow rate which would have been considered a result effective variable by one having ordinary skill in the art at the

time the invention was made. As such, without showing unexpected results, the claimed distances cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the distances between the respective discs and baffles Krug to obtain the desired cross-sectional flow rate of the catalyst being regenerated (*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller*, 105 USPQ 223).

With respect to claim 38, Krug teaches wherein the particulate catalyst is any porous solid catalyst (col. 11. lines 18-26).

With respect to claim 39, Krug teaches wherein the particulate catalyst is a zeolite-containing (silica) FCC catalyst (col. 11. lines 18-26).

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krug et al. (US 4,500,423), and further in view of Hedrick (US 7,002,221 B1) and in view of Haddad et al. (US 4,933,150), as applied to claim 1 above, and further in view of Lu et al. (US 2002/0094313 A1).

With respect to claim 2, Krug discloses all claim limitations as set forth above but fails to show wherein said apparatus further comprises a pipe-grid for feeding the gaseous pre-stripping fluid located in the upper part of the stripper apparatus. Lu teaches a stripping apparatus comprising a pipe-grid/conduit (fig. 2, 3) for feeding

Art Unit: 1764

the gaseous pre-stripping fluid located in the upper part of the stripper apparatus in order to provide a very short contact time between the steam and the regenerated catalyst thereby preventing hydrothermal deactivation of the catalyst (page 3, paragraph [0049]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a pipe-grid for feeding the gaseous pre-stripping fluid located in the upper part of the modified stripper apparatus of Krug, as taught by Lu, in order to provide a very short contact time between the steam and the regenerated catalyst thereby preventing hydrothermal deactivation of the catalyst.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaity Handal whose telephone number is (571) 272-8520. The examiner can normally be reached on M-F 8-5.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1764

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KH

6/17/2006


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PRIMARY EXAMINER